

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ASSISTANT SECRETARY FOR HOUSING-FEDERAL HOUSING COMMISSIONER

Series and Series Number: (Supersedes
issue dated October 1, 1992)

TO: DIRECTORS, HOUSING DIVISION
DIRECTORS, MULTIFAMILY DIVISION
DIRECTORS, SINGLE FAMILY DIVISION

MATERIALS RELEASE NO. 1255a

ISSUE DATE: December 6, 1995

REVIEW DATE: December 6, 1998

SUBJECT: 1. Product Hacker FIRM-FILL and FIRM-FILL HIGH STRENGTH
Underlayment System
2. Name and Address
of Manufacturer Hacker Industries, Inc.
P. O. Box 5918
Newport Beach, CA 92662

Data on the nonstandard product described herein have been reviewed by the Department of Housing and Urban Development and determination has been made that it is considered suitable from a technical standpoint for the use indicated herein. This Release does not purport to establish a comparative quality or value rating for this product as compared to standard products normally used in the same manner.

This Materials Release cannot be used as an indication of endorsement, approval or acceptance by HUD of the described product, and any statement or representation, however made, indicating such approval, endorsement or acceptance by HUD is unauthorized. See Code 18, U.S.C. 709.

Any reproduction of this Release must be in its entirety.

USE: Interior floor underlayment for use under a wearing course of carpet, tile or other approved floor covering.

DESCRIPTION:

The Hacker underlayment system is a non-structural gypsum floor fill for use on plywood, oriented strand board (OSB) and concrete floors. The underlayment shall be covered with carpet, tile or other approved floor coverings.

MATERIALS:

Hacker underlayments are made of calcined gypsum containing not less than 90% by weight of calcium sulfate hemihydrate, as specified in ASTM C-28 for gypsum plaster and up to 10% by weight of Type 5 portland cement as specified in ASTM C-150. Sand shall be washed mason, plaster or mortar sand. Sand shall be 1/16" or less sieve size. Water shall be potable and free of impurities.

All materials shall be approved by Hacker.

REQUIREMENTS:

The floor system shall support the design live load with a deflection limit of $L/360$. The subfloor may be plywood, oriented strand board (OSB), concrete or precast concrete. Plywood shall meet the requirements of PS 1-83 Exposure 1. OSB shall meet the requirements of Performance Standards and Policies for Structural-Use Panels Exposure 1. All panels shall meet the span rating requirements of Table 1. Provide tongue and groove joints, blocking or panel clips at joints. The minimum underlayment thickness shall be in accordance with Table 1, except that the underlayment placed on concrete or precast concrete may be a minimum of 1/2".

TABLE 1

Support Spacing	Span Rating	Minimum Gypsum Thickness
(in)	(in)	(in)
16	32/16	3/4
19.25	40/20	3/4
24	48/24	1

Underlayment shall meet the strength and density requirements of Table 2.

TABLE 2

	Firm-Fill	Firm-Fill High Strength
Density (Min)	100 pcf	110 pcf
Compressive Strength (Min)	1200 psi	1800 psi

INSTALLATION:

The Hacker Underlayment System shall be installed in strict compliance with the manufacturer's printed specifications, by a Licensed Applicator authorized by Hacker, using mixing and pumping equipment authorized by Hacker. Pre-installation, installation and post installation methods (including test samples for every 3000 square feet of poured material) shall be approved by Hacker.

1. Subfloor

The subfloor shall be structurally sound, broom clean, and free of mud, oil, grease, or other contaminants. To prevent leakage, all cracks and voids shall be filled with a quick setting topping or caulking compound approved by Hacker.

2. Priming

All wood subfloors shall be primed with Hacker Floor Primer. On new wood, one coat of latex primer shall be sprayed on at the rate of 1 gallon per 500 sq. ft. over the entire surface. On new or old concrete, a sealer is not necessary; however, all concrete subfloors shall be primed with Hacker Floor Primer.

3. Finished Flooring

Before, during and after installation of FIRM-FILL gypsum concrete, building interior shall be maintained at a temperature above 50°F until structure and subfloor temperatures are stabilized. After installation, provide adequate ventilation to rapidly remove moisture from the area until underlayment is dry. Under the above conditions, 4-6 days is usually an adequate drying time. To test for dryness, tape 24" x 24" sections of plastic to the surface of the FIRM-FILL gypsum concrete on a daily basis. When after 48-72 hours, no condensation occurs, the FIRM-Fill gypsum concrete installation is considered to be dry. The floor finish may then be installed.

LIMITATIONS:

The underlayment is for above grade interior use. The underlayment shall not be used in contact with metal door jams or metal decks. The underlayment requires a finish floor covering to protect it from abrasion.

STORAGE AND HANDLING:

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall not be used.

QUALITY ASSURANCE:

Test cubes shall be taken by Hacker or its designated Licensed Applicator at each installation. Take a minimum of 2 sets per job and 1 set per 3,000 sq. ft. of underlayment. Test for density and compressive strength in accordance with ASTM C-472. Copy of the test results shall be given to the owner.

WARRANTY:

Hacker Industries, Inc. warrants that the FIRM-FILL and FIRM-FILL HIGH STRENGTH installations meet the requirements of this Materials Release (MR). Hacker warrants the products against defects in materials and workmanship for a period of five years from the date of installation. Hacker shall repair or replace defective FIRM-FILL or FIRM-FILL HIGH STRENGTH Hacker underlayments. Hacker shall not be responsible for defects or damage resulting from fire or natural catastrophe such as floods or tornados.

MANUFACTURER'S RESPONSIBILITIES:

Issuance of this Materials Release (MR) commits the manufacturer to fulfill, as a minimum, the following:

1. Produce, label and certify the material, product or system in strict accordance with the terms of this MR.
2. Provide necessary corrective action in a timely manner for all cases of justified complaint, poor performance or failure reported by HUD.

3. When requested, provide the Office of Consumer and Regulatory Affairs, Manufactured Housing and Construction Standards Division, HUD Headquarters, with a representative list of properties in which the material, product or system has been used, including complete addresses or descriptions of locations and dates of installation.
4. Inform HUD in advance of changes in production facilities, methods, design of the product, company name, ownership or mailing address.

EVALUATION:

This MR shall be valid for a period of three years from the date of initial issuance or most recent renewal or revision, whichever is later. The holder of this MR shall apply for renewal or revision 90 days prior to the Review Date printed on this MR. Submittals for renewal or revision shall be sent to HUD Headquarters. Appropriate User Fees shall be sent to:

U. S. Department of Housing and Urban Development
Technical Suitability of Products Fees
P. O. Box 954199
St. Louis, MO 63195-4199

The holder of this MR may apply for revision at any time prior to the Review Date. The revision may be in the form of a supplement to the MR.

If the Department determines that a proposed renewal or supplement constitutes a revision, the appropriate User Fee for a revision will need to be submitted in accordance with Code of Federal Regulations 24 CFR 200.934, "User Fee System for the Technical Suitability of Products Program," and current User Fee Schedule.

CANCELLATION:

Failure to apply for a renewal or revision shall constitute a basis for cancellation of the MR. HUD will notify the manufacturer that the MR may be canceled when:

1. conditions under which the document was issued have changed so as to affect production of, or to compromise the integrity of the accepted material, product, or system,
2. the manufacturer has changed its organizational form without notifying HUD, or

3. the manufacturer has not complied with responsibilities it assumed as a condition of HUD's acceptance.

However, before cancellation, HUD will give the manufacturer a written notice of the specific reasons for cancellation, and the opportunity to present views on why the MR should not be canceled. No refund of fees will be made on a canceled document.

This Materials Release is issued solely for the captioned
firm, and is not transferable to any person or successor
entity.
